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Gender Differences in Smoking Among U.S. Working Adults

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Abstract

Background—Cigarette smoking remains a leading cause of morbidity and mortality. Although gender differences in cigarette smoking in the U.S. population have been documented, information on these differences among working adults is limited.

Purpose—To describe the current smoking prevalence by gender among working U.S. adults and examine gender differences in smoking by occupation.

Methods—The 2004–2011 National Health Interview Survey data for adults aged ≥18 years that were working in the week prior to the interview (N=132,215) were analyzed in 2013. Current cigarette smokers were those who smoked at least 100 cigarettes in their lifetime and currently smoke every day or some days.

Results—During 2004–2011, an estimated 22.8% of men workers and 18.3% of women workers were current smokers. Of the current smokers, women workers had higher odds of being an everyday smoker (prevalence OR [POR]=1.17, 95% CI=1.09, 1.26); having poor self-rated emotional health (POR=1.28, 95% CI=1.15, 1.41); and having chronic obstructive pulmonary disease (POR=2.45, 95% CI=2.14, 2.80), heart disease (POR=1.27, 95% CI=1.12, 1.45), and current asthma (POR=2.21, 95% CI=1.96, 2.49) compared with men workers. Women in "supervisors, construction, and extraction" (38.9%) occupations and men in "extraction" (40.5%) occupations had the highest smoking prevalence.

Conclusion—Among working adults, women had lower prevalence of smoking than men, yet women who smoke were more likely than men to have adverse health outcomes, including self-rated poorer physical and emotional health.

Introduction

Cigarette smoking remains a leading cause of morbidity and mortality.[1–4] In 2011, 21.6% of men and 16.5% of women were current smokers in the U.S.[2] Similar patterns were observed

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among working adults (21.5% of men and 17.4% of women).[5] Women who smoke have higher burden of smoking-related diseases than men who smoke.[6–11] Women smokers have a 25% increased risk of developing coronary heart disease and chronic obstructive pulmonary disease (COPD) and a high incidence of lung cancer compared to men who smoke.[6,10] The percentage of women in the workforce has also increased from 38% in 1970 to 47% in 2010.[12]

Furthermore, previous studies[13–17] have demonstrated the additive effect of cigarette smoking on adverse health outcomes and certain occupational exposures. Understanding occupational factors, socioeconomic characteristics, and smoking behavior of working men and women may guide targeted gender-specific interventions and more effective policies, smoking-cessation programs, and counseling strategies.[11,18] This study estimates gender-specific cigarette smoking prevalence by occupation and examines the association between smoking behaviors, select socioeconomic characteristics, and health status among working men and women.

Methods

The National Health Interview Survey (NHIS) collects health information from the U.S. civilian non-institutionalized population.[19,20] The survey response rates ranged from 72.5% in 2004 to 66.3% in 2011.[19,20]

Data on current occupation were collected from adults who were working in the week prior to the interview.[20] Because of small sample sizes, 94 available detailed occupations were collapsed into 45 occupations using National Center for Health Statistics criteria[20] and into four major occupational categories using criteria of Ham et al.[21] Current cigarette smokers were those who smoked at least 100 cigarettes in their lifetime and currently smoke “every day” or “some days.”[19]

Data from the 2004–2011 NHIS were combined to improve precision and reliability of the estimates.[19] Bivariable logistic regression was used to calculate prevalence ORs (PORs) and multivariable logistic regression to calculate PORs adjusted for age, race/ethnicity, education, and combined family income.[10,18,19,21] The referent group was all other currently employed adults who were not in the occupation of interest. All tests were two-sided, and differences were considered significant at α=0.05. Prevalence estimates with relative SE (RSE, calculated as SE of the estimate divided by the estimate) >30% and <50% are reported but may be unreliable. Estimates with RSE ≥50% were considered unreliable and are not reported.[19] Analyses were conducted in 2013 using SAS, version 9.2 (SAS Institute Inc., Cary NC).

Results

During 2004–2011, of the 141 million U.S. adults working the week prior to the interview, 53.5% were men, 46.5% were women, and 20.7% were current cigarette smokers. Smoking prevalence was highest among non-Hispanic whites and those with education ≤high school, income <$35,000, no health insurance, and living in the Midwest (Table 1). Smoking

declined among working men (3.0%, $p<0.0001$) and women (2.8%, $p<0.0001$) during 2004–2011.

After adjusting for covariates, women who smoked had significantly higher odds of being an everyday smoker (POR=1.16); making an attempt to quit smoking (POR=1.10); having poor self-rated physical health (POR=1.20); having poor self-rated emotional health (POR=1.28); missing work for >7 days at a job or business because of illness or injury (POR=1.76); and having COPD (POR=2.45), any cancer (POR=2.57), heart disease (POR=1.27), or current asthma (POR=2.21) than men who smoked (Table 2).

Men working in “precision production, craft, construction, repair operators, fabricators, and laborers” (POR=1.94) occupations had the highest odds of being a current smoker. Among detailed occupations, “vehicle and mobile equipment mechanics, installers, and repairers” (POR=1.88) had the highest POR (Table 3), and “legal” (0.33) occupations had the lowest POR.

Women working in “services” (POR=1.34) occupations had the highest odds of being a current smoker. Among detailed occupations, “supervisors, construction, and extraction” (POR=3.00) had the highest POR and “primary, secondary, and special education school teachers” (POR=0.39) had the lowest POR. After adjusting for age, race, education and income, women in “healthcare practitioners and technical” (POR=1.56); “protective service” (POR=1.46); and “community and social services” (POR=1.37) occupations had significantly higher smoking prevalence than men (Table 3).

Discussion

During 2004–2011, significantly more men (22.8%) than women (18.3%) were current smokers. Women smokers were more likely to report poor physical and mental health, COPD, heart disease, cancer, and current asthma than men who smoke. Factors associated with smoking and adverse health outcomes in women (e.g., biological factors, genetic and hormonal factors, socioeconomic factors, occupational exposure, job stress, personal lifestyles, secondhand smoke exposure, or a combination of these factors) have been reported previously.[10,11,23–25]

In both men and women, cigarette smoking prevalence varied widely by occupational group. In certain occupations, the prevalence of smoking was three times greater than the Healthy People 2020 goal that aims to reduce cigarette smoking prevalence to ≤12%.[26] Similar findings have been previously documented.[21,22,27]

Women in health care–related occupations had higher smoking prevalence than men. This finding is underscored by the fact that more women than men work in this sector and that healthcare providers are critical in the delivery of clinical preventive services for reducing tobacco use. Social or cultural factors related to the occupation may be associated with higher smoking prevalence.[21]

Holahan and colleagues[28] found that presence of smokers in the workplace and at home was significantly associated with higher odds of being a current smoker. Our findings of lowest

prevalence among women in teaching-related occupations and among men in “legal” occupations are supported by previous reports.[6,21,29] The observed differences of smoking prevalences by job type could be explained, in part, by occupational and environmental factors, such as low educational level, increased job stressors, workplace culture, exposure to dusts and chemicals, and low rates of tobacco control programs and policies.[21,27,29]

Although the NHIS data did not include measures to assess workplace policies or exposures to secondhand smoke, other national surveys[21,27,29] have shown that the proportion of smoke-free worksites are lower in mining, production, food services, and construction occupations than in professional and related services occupations, and the current results show that smoking prevalences are higher among these occupations. Detailed description of current smoking among working men and women by occupation will inform interventions that can be targeted to specific worksite settings. These interventions may include a combination of effective strategies such as tobacco-free policies, cessation programs, and educational campaigns.[30–33]

Study limitations include the use of self-reported smoking information that was not validated by biochemical tests.[34,35] Cross-sectional analysis of NHIS data does not assess the long-term health effects of smoking or causal inferences between smoking and health outcomes. The study only included currently employed adults; however, additional analyses examining longest-held job found similar results in both men and women.

Smoking is the most important modifiable risk factor associated with various health outcomes. Women had lower prevalence of smoking, yet a higher prevalence of adverse health outcomes when compared with men. For some occupations, women smoked more than men. Future studies should explore methods to include indicators on individual’s industry and occupation, smoking behaviors, gender, and health outcomes for designing targeted intervention programs specific to the group. Targeting occupations with high smoking prevalence while considering gender differences may further reduce smoking and improve overall well-being. Results of this study can be used to implement existing, effective tobacco control strategies in coordination with gender-specific interventions.[27,28,30–33]

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References

1. CDC. The health consequences of smoking—50 years of progress: a report of the surgeon general. Atlanta GA: USDHHS, CDC, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; 2014. www.surgeongeneral.gov/library/reports/50-years-of-progress/exec-summary.pdf
2. CDC. Current cigarette smoking among adults—U.S. 2011. MMWR Morb Mortal Wkly Rep. 2012; 61(44):889–94. [PubMed: 23134971]
3. CDC. Smoking-attributable mortality, years of potential life lost, and productivity losses—U.S. 2000–2004. MMWR Morb Mortal Wkly Rep. 2008; 57(45):1226–8. [PubMed: 19008791]

4. USDHHS. Health consequences of smoking: a report of the Surgeon General. cdc.gov/tobacco/data_statistics/sgr/2004/
5. CDC. Current cigarette smoking prevalence among working adults—U.S. 2004–2010. MMWR Morb Mortal Wkly Rep. 2011; 60(38):1305–9. [PubMed: 21956406]
6. Freedman ND, Leitzmann MF, Hollenbeck AR, Schatzkin A, Abnet CC. Cigarette smoking and subsequent risk of lung cancer in men and women: analysis of a prospective cohort study. Lancet Oncol. 2008; 9(7):649–56. [PubMed: 18556244]
7. CDC. Curent cigarette smoking among adults—U.S. 2006. MMWR Morb Mortal Wkly Rep. 2007; 56(44):1157–61. [PubMed: 17989644]
8. Chen Y, Dales R, Krewski D, Breithaupt K. Increased effects of smoking and obesity on asthma among female Canadians: the National Population Health Survey, 1994–1995. Am J Epidemiol. 1999; 150(3):255–62. [PubMed: 10430229]
9. Kennedy SM, Chambers R, Du W, Dimich-Ward H. Environmental and occupational exposures: do they affect chronic obstructive pulmonary disease differently in women and men? Proc Am Thorac Soc. 2007; 4(8):692–4. [PubMed: 18073405]
10. Huxley RR, Woodward M. Cigarette smoking as a risk factor for coronary heart disease in women compared with men: a systematic review and meta-analysis of prospective cohort studies. Lancet. 2011; 378(9799):1297–5. [PubMed: 21839503]
11. Kirkland S, Greaves L, Devichand P. Gender differences in smoking and self-reported indicators of health. BMC Womens Health. 2004; (4S1):S7. [PubMed: 15345070]
12. U.S. Census Bureau. How do we know? America's changing labor force. Washington DC: U.S. Census Bureau; 2011. www.census.gov/how/pdf/EEO_infographic.pdf
13. Markowitz SB, Levin SM, Miller A, Morabia A. Asbestos, asbestosis, smoking, and lung cancer. New findings from the North American Insulator Cohort. Am J Respir Crit Care Med. 2013; 188(1):90–6. [PubMed: 23590275]
14. Kurihara N, Wada. Silicosis and smoking strongly increase lung cancer risk in silica-exposed workers. Industrial Health. 2004; 42(3):303–14. [PubMed: 15295901]
15. Blanc PD, Iribarren C, Trupin L, et al. Occupational exposures and the risk of COPD: dusty trades revisited. Thorax. 2009; 64(1):6–12. [PubMed: 18678700]
16. Matheson MC, Benke G, Raven J, et al. Biological dust exposure in the workplace is a risk factor for chronic obstructive pulmonary disease. Thorax. 2005; 60(8):645–51. [PubMed: 16061705]
17. Sunyer J, Zock JP, Kromhout H, et al. Lung function decline, chronic bronchitis, and occupational exposures in young adults. Am J Respir Crit Care Med. 2005; 172(9):1139–45. [PubMed: 16040784]
18. Task Force on Community Preventive Services. Recommendations for worksite-based interventions to improve workers' health. Am J Prev Med. 2010; 38(2S):S232–S236. [PubMed: 20117609]
19. CDC. Data file documentation, National Health Interview Survey. Hyattsville MD: CDC, National Center for Health Statistics; 2010. ftp.cdc.gov/pub/Health_Statistics/NCHS/Dataset_Documentation/NHIS/2010/srvydesc.pdf
20. CDC. Data file documentation, National Health Interview Survey. Hyattsville MD: CDC, National Center for Health Statistics; 2004–2009. ftp.cdc.gov/pub/Health_Statistics/NCHS/Datasets/NHIS/2004_2009_IO_note_to_users.pdf
21. Ham DC, Przybeck T, Strickland JR, Luke DA, Bierut LJ, Evanoff BA. Occupation and workplace policies predict smoking behaviors: analysis of national data from current population survey. J Occup Environ Med. 2011; 53(11):1337–45. [PubMed: 21988795]
22. Bang KM, Kim JH. Prevalence of cigarette smoking by occupation and industry in the U. S Am J Ind Med. 2001; 40(3):233–9.
23. Denton M, Prus S, Walters V. Gender differences in health: a Canadian study of the psychosocial, structural and behavioral determinants of health. Soc Sci Med. 2004; 58(12):2585–600. [PubMed: 15081207]
24. Kouvonen A, Kivimäki M, Virtanen M, Pentti J, Vahtera J. Work stress, smoking status, and smoking intensity: an observational study of 46,190 employees. J Epidemiol Community Health. 2005; 59(1):63–9. [PubMed: 15598729]

25. Ng DM, Jeffery RW. Relationships between perceived stress and health behaviors in a sample of working adults. Health Psychol. 2003; 22(6):638–42. [PubMed: 14640862]
26. USDHHS. Healthy People 2020. Objective TU-1.1: Cigarette smoking. healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicId=41#285350
27. Chin DL, Hong O, Gillen M, Bates MN, Okechukwu CA. Cigarette smoking in building trades workers: the impact of work environment. Am J Ind Med. 2012; 55(5):429–39. [PubMed: 22392815]
28. Holahan CK, Holahan CJ, Li X, Jung S. Social influences on smoking in American workers: the role of the presence of smokers in the workplace and in the home. Am J Health Promot. 2013; 28(2):105–7. [PubMed: 23458371]
29. Shopland DR, Anderson CM, Burns DM, Gerlach KK. Disparities in smoke-free workplace policies among food service workers. J Occup Environ Med. 2004; 46(4):347–56. [PubMed: 15076653]
30. CDC. Best practices for comprehensive tobacco control programs—2007. Atlanta GA: USDHHS, CDC, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; 2007.
31. Cahill K, Moher M, Lancaster T. Workplace interventions for smoking cessation. Cochrane Database Syst Rev. 2008; (4):CD003440. [PubMed: 18843645]
32. Fiore, MC.; Jaen, CR.; Baker, TB., et al. Clinical practice guideline. Rockville MD: USDHHS, Public Health Service; 2008. Treating tobacco use and dependence: 2008 update. www.surgeongeneral.gov/tobacco/treating_tobacco_use08.pdf
33. Farrelly MC, Evans WN, Sfekas AE. The impact of workplace smoking bans: results from a national survey. Tob Control. 1999; 8(3):272–7. [PubMed: 10599571]
34. Caraballo RS, Giovino GA, Pechacek TF, Mowery PD. Factors associated with discrepancies between self-reports on cigarette smoking and measured serum cotinine levels among person aged 17 years or older: Third National Health and Nutrition Examination Survey, 1988–1994. Am J Epidemiol. 2001; 153(8):807–14. [PubMed: 11296155]
35. Patrick DL, Cheadle A, Thompson DC, Diehr P, Koepsell T, Kinne S. The validity of self-reported smoking: a review and meta-analysis. Am J Public Health. 1994; 84(7):1087–93.

Table 1

Demographic characteristics and prevalence of cigarette smoking by gender among working U.S. adults

	Number in sample[a]		Estimated[b] currently working population (in 1,000s)		Current smokers (prevalence % [95% CI])	
Characteristics	**Men**	**Women**	**Men**	**Women**	**Men**	**Women**
Age group (years)						
18–24	6,817	7,115	9,302	8,604	26.9 (25.5, 28.4)	19.4 (18.2, 20.6)
25–44	31,564	31,054	35,246	28,865	23.7 (23.1, 24.3)	19.7 (19.1, 20.3)
45–64	24,071	25,475	27,733	25,418	21.7 (21.0, 22.4)	17.3 (16.7, 17.9)
>65	3,071	3,048	3,008	2,447	10.2 (8.9, 11.5)	9.2 (8.0, 10.4)
Race/ethnicity						
Hispanic	13,233	11,279	11,865	7,587	18.6 (17.7, 19.5)	10.1 (9.4, 10.8)
Non-Hispanic white	40,318	40,104	52,016	45,862	24.0 (23.4, 24.6)	20.9 (20.4, 21.5)
Non-Hispanic black	7,836	11,453	7,367	8,332	22.7 (21.5, 23.9)	15.3 (14.4, 16.1)
Other	4,136	3,856	4,040	3,552	19.9 (18.4, 21.5)	9.7 (8.4, 10.9)
Education						
<High school	9,126	6,744	9,340	5,496	32.5 (31.1, 33.9)	26.0 (25.4, 28.2)
High school graduate	17,290	16,277	20,489	16,256	31.7 (30.9, 32.6)	25.7 (24.8, 26.6)
>High school	38,631	43,240	44,911	43,173	16.8 (16.2, 17.3)	14.5 (14.1, 15.0)
Unknown	476	431	549	407	__[c]	__[c]
Household income ($)						
0–34,999	18,155	22,125	15,943	16,113	32.3 (31.4, 33.3)	26.1 (25.2, 26.9)
35,000–74,999	21,118	20,578	24,131	20,318	25.1 (24.4, 25.8)	19.7 (19.0, 20.4)

Characteristics	Number in sample[a]		Estimated[b] currently working population (in 1,000s)		Current smokers (prevalence % [95% CI])	
	Men	Women	Men	Women	Men	Women
≥75,000	19,035	17,026	26,676	21,742	15.8 (15.1, 16.5)	12.1 (11.5, 12.7)
Unknown	7,215	6,963	8,540	7,160	20.8 (19.5, 22.0)	16.0 (15.0, 17.0)
Health insurance						
Not insured	14,279	10,995	14,866	9,663	35.2 (34.2, 36.3)	28.2 (27.1, 29.4)
Insured	51,038	55,484	60,135	55,436	19.7 (19.2, 20.3)	16.6 (16.2, 17.0)
Unknown	206	213	288	234	__[c]	__[c]
Region						
Northeast	14,279	10,995	12,924	12,192	20.9 (19.6, 22.2)	17.5 (16.7, 18.4)
Midwest	51,038	55,484	18,226	16,447	25.3 (24.3, 26.3)	21.4 (20.5, 22.3)
South	23,610	24,436	26,950	23,099	24.4 (23.6, 25.1)	19.2 (18.5, 19.8)
West	16,547	15,276	17,190	13,595	19.3 (18.4, 20.2)	13.9 (13.1, 14.6)
Total	65,523	66,692	75,289	65,333	22.8 (22.4, 23.3)	18.3 (17.9, 18.7)

[a] The 2004–2011 National Health Interview Survey respondents aged ≥18 years, working in the week prior to the survey

[b] Estimated average annual populations are weighted to represent current U.S. men and women workers aged 18 years who were employed in the week prior to the interview.

[c] Relative SE for the estimated number of people who currently smoke >30%; estimate suppressed.

Table 2

Smoking behavior and health characteristics of current smokers by gender among working U.S. adults

Characteristics	Men (% [95% CI])	Women (% [95% CI])	Women compared with men (POR[a] [95% CI])
Frequency of smoking			
Every day	76.8 (75.9, 77.7)	79.4 (78.5, 80.3)	**1.16 (**1.08, 1.24)
Some days	23.2 (22.3, 24.1)	20.6 (19.7, 21.5)	**0.86 (**0.81, 0.93)
Attempted to quit smoking			
Yes	43.9 (42.8, 45.0)	46.2 (45.0, 47.3)	**1.10 (**1.03, 1.17)
No	56.1 (55.0, 57.2)	53.8 (52.7, 55.0)	**0.91 (**0.86, 0.97)
Number of cigarettes/day[b]			
≤14	51.9 (50.9, 53.0)	62.4 (61.3, 63.4)	**1.55 (**1.46, 1.65)
>14	48.1 (47.0, 49.1)	37.6 (36.6, 38.7)	**0.65 (**0.61, 0.68)
Age first started to smoke (years)			
≤18	69.4 (68.4, 70.4)	68.0 (66.9, 69.0)	1.03 (0.97, 1.11)
>18	30.6 (29.7, 31.2)	32.0 (31.0, 33.1)	0.97 (0.91, 1.03)
Self-rated physical health			
Excellent/good	92.0 (91.5, 92.5)	90.6 (90.0, 91.2)	**0.83 (**0.75, 0.92)
Poor/fair	8.0 (7.5, 8.5)	9.4 (8.8, 10.0)	**1.20 (**1.09, 1.33)
Self-rated emotional health			
Good	42.5 (40.7, 44.4)	37.0 (35.4, 38.6)	**0.78 (**0.71, 0.87)
Poor	57.3 (55.4, 59.1)	63.0 (61.4, 64.6)	**1.28 (**1.15, 1.41)
Chronic diseases			
COPD	3.8 (3.4, 4.2)	8.9 (8.4, 9.5)	**2.45 (**2.14, 2.80)
Heart disease	4.3 (3.9, 4.7)	5.4 (5.0, 5.9)	**1.27 (**1.12, 1.45)
Any cancer[f]	2.6 (2.3, 2.9)	6.4 (5.8, 6.9)	**2.57 (**2.23, 2.96)
Lung cancer	3.9 (1.3, 6.5)	1.1 (0.22, 1.89)	0.35 (0.11, 1.05)
Current asthma	4.4 (3.9, 4.8)	9.1 (8.4, 9.7)	**2.21 (**1.96, 2.49)
Asthma attack	40.4 (35.4, 45.5)	51.1 (47.4, 55.8)	**1.45 (**1.13, 1.87)
Seen/talked to a physician			
Yes	51.4 (50.4, 52.4)	66.0 (64.9, 67.1)	**1.81 (**1.70, 1.93)
No	48.6 (47.6, 49.6)	34.0 (32.9, 35.1)	**0.55 (**0.52, 0.59)
Light/moderate physical activity			
Yes	50.6 (49.5, 51.8)	55.1 (53.9, 56.3)	**1.18 (**1.11, 1.25)
No	49.4 (48.2, 50.5)	44.9 (43.7, 46.1)	**0.85 (**0.79, 0.90)
Lost work days			
0	56.7 (55.7, 57.7)	45.9 (44.8, 47.0)	**0.67 (**0.63, 0.71)
1–7	34.6 (33.6, 35.9)	41.6 (40.5, 42.7)	**1.50 (**1.41, 1.59)
>7	8.7 (8.1, 9.3)	12.5 (11.7, 13.2)	**1.76 (**1.59, 1.96)

Note: Boldface indicates statistical significance; estimates are weighted to represent the U.S. working population.

[a]POR represents the odds of women who are current smokers with specific smoking behaviors or health outcome compared with men who are current smokers with specific smoking behaviors or health outcome. PORs were adjusted for age, race, education, and income.

[b]Overall average number of cigarettes smoked among working population who currently smoked was 14.

COPD, chronic obstructive pulmonary disease; POR, prevalence OR.

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Table 3

Cigarette smoking prevalence and PORs by occupation and gender among working U.S. adults

Occupation group	Men			Women			Women compared with men POR[c] (95% CI)
	Estimated[a] workers (in 1000's)	Prevalence % (95% CI)	POR[b] (95% CI)	Estimated[a] workers (in 1000's)	Prevalence % (95% CI)	POR[b] (95% CI)	
Managerial and professional specialty technical, sales, and administrative support	**35,548**	**16.6 (16.0, 17.1)**	**0.55 (0.52, 0.58)**	**44,433**	**15.9 (15.5, 16.4)**	**0.73 (0.69, 0.77)**	**0.90 (0.86, 0.94)**
Chief executives, general and operations managers, and legislators	1,447	12.8 (10.5, 15.1)	**0.62 (0.50, 0.76)**	481	10.4 (7.7, 13.2)	**0.62 (0.46, 0.84)**	0.72 (0.50, 1.03)
Advertising, marketing, promotions, public relations, and sales managers	503	13.2 (9.4, 17.1)	**0.60 (0.42, 0.85)**	366	16.4 (12.2, 20.5)	0.96 (0.71, 1.30)	1.09 (0.68, 1.75)
Operations specialties managers and other management	6,357	16.9 (15.6, 18.2)	**0.75 (0.68, 0.82)**	3,964	16.1 (14.6, 17.7)	1.00 (0.89, 1.12)	0.93 (0.80, 1.09)
Business and financial operations	2,739	13.7 (12.1, 15.3)	**0.64 (0.56, 0.74)**	3,213	15.0 (13.5, 16.6)	0.94 (0.83, 1.06)	1.06 (0.89, 1.27)
Computer and mathematical	2,767	13.2 (11.5, 14.8)	**0.57 (0.49, 0.66)**	950	11.4 (9.2, 13.6)	**0.67 (0.53, 0.84)**	0.81 (0.61, 1.08)
Entertainers and performers, sports and related	376	15.0 (10.3, 19.6)	0.65 (0.45, 0.95)	384	10.2 (6.6, 13.7)	**0.53 (0.38, 0.84)**	0.53 (0.33, 0.84)
Life, physical, and social science	729	10.2 (7.7, 12.7)	**0.48 (0.36, 0.63)**	655	9.4 (6.7, 12.1)	**0.57 (0.41, 0.78)**	0.90 (0.58, 1.40)
Community and social services	905	9.7 (7.5, 11.9)	**0.41 (0.32, 0.53)**	1,410	12.8 (10.8, 14.8)	**0.78 (0.65, 0.94)**	**1.37 (1.00, 1.90)**
Legal	792	7.1 (5.0, 9.1)	**0.33 (0.24, 0.45)**	841	13.0 (10.0, 16.1)	0.78 (0.60, 1.02)	1.53 (0.99, 2.37)
Postsecondary teachers	710	8.9 (6.5, 11.2)	**0.38 (0.28, 0.52)**	672	7.0 (4.9, 9.1)	**0.40 (0.29, 0.56)**	0.77 (0.48, 1.23)
Primary, secondary, and special education school teachers	1,433	9.4 (7.5, 11.2)	**0.40 (0.32, 0.49)**	4,675	7.6 (6.7, 8.5)	**0.39 (0.34, 0.44)**	0.74 (0.57, 0.95)
Librarians, curators, and archivists and other education-related	152	16.4 (9.8, 23.0)	0.72 (0.45, 1.16)	1,192	11.1 (8.8, 13.4)	**0.57 (0.45, 072)**	0.55 (0.31, 0.96)
Art and design	523	17.8 (13.2, 22.3)	0.93 (0.65, 1.27)	494	14.7 (10.8, 18.6)	0.93 (0.67, 1.27)	0.78 (0.49, 1.24)
Architecture and engineering	2,299	15.0 (12.9, 17.0)	**0.71 (0.61, 0.84)**	228	14.2 (9.1, 19.4)	0.79 (0.52, 1.20)	0.95 (0.54, 1.67)

Occupation group	Men			Women			Women compared with men POR[c] (95% CI)
	Estimated[a] workers (in 1000's)	Prevalence % (95% CI)	POR[b] (95% CI)	Estimated[a] workers (in 1000's)	Prevalence % (95% CI)	POR[b] (95% CI)	
Media and communication	552	16.3 (12.7, 19.9)	0.79 (0.60, 1.05)	510	11.0 (8.2, 13.9)	**0.65 (0.48, 0.89)**	0.62 (0.41, 0.92)
Healthcare practitioners and technical	1,810	8.8 (7.2, 10.3)	**0.37 (0.30, 0.45)**	5,320	13.7 (12.6, 14.8)	**0.82 (0.74, 0.91)**	**1.56 (1.25, 1.94)**
Supervisors, sales	2,242	24.0 (21.7, 26.2)	**1.14 (1.00, 1.29)**	1,505	24.7 (21.8, 27.6)	**1.42 (1.21, 1.67)**	0.88 (0.72, 1.07)
Retail sales	2,418	25.2 (23.1, 27.4)	1.05 (0.93, 1.20)	3,622	23.2 (21.5, 25.0)	**1.12 (1.01, 1.24)**	0.78 (0.66, 0.91)
Sales representatives, services, wholesale, and manufacturing	2,813	17.3 (15.3, 19.3)	**0.84 (0.73, 0.97)**	1,917	17.8 (15.9, 19.8)	1.06 (0.92, 1.22)	0.93 (0.76, 1.14)
Supervisors, office and administrative support, and communication equipment operators	1,057	20.0 (16.8, 23.1)	0.86 (0.70, 1.05)	3,216	17.2 (15.6, 18.8)	0.92 (0.83, 1.04)	0.77 (0.61, 0.97)
Administrative support	3,827	23.2 (21.5, 24.9)	0.95 (0.85, 1.05)	10,230	19.5 (18.6, 20.5)	**1.08 (1.00, 1.16)**	0.79 (0.71, 0.89)
Services	**10,664**	**24.6 (23.4, 25.7)**	**1.00 (0.93, 1.07)**	**14,442**	**24.0 (23.1, 24.9)**	**1.34 (1.27, 1.42)**	**0.90 (0.83, 0.97)**
Healthcare support	389	20.9 (16.0, 25.8)	0.83 (0.60, 1.14)	2,719	26.3 (24.3, 28.3)	**1.43 (1.29, 1.59)**	1.22 (0.86, 1.72)
Protective service	2,167	15.5 (13.6, 17.4)	**0.63 (0.54, 0.74)**	597	22.8 (18.7, 26.9)	1.26 (0.99, 1.60)	**1.46 (1.09, 1.95)**
Supervisors, food preparation, and serving	479	33.9 (28.5, 39.3)	**1.72 (1.31, 2.25)**	424	30.3 (24.9, 35.7)	**1.69 (1.30, 2.20)**	0.75 (0.52, 1.10)
Cooks and food preparation	1,322	36.0 (32.2, 39.8)	**1.45 (1.22, 1.74)**	1,237	24.7 (21.7, 27.7)	1.11 (0.93, 1.32)	0.53 (0.42, 0.68)
Food and beverage serving and related	1,233	34.3 (30.2, 38.3)	**1.48 (1.22, 1.80)**	2,325	34.0 (31.5, 36.5)	**1.91 (1.70, 2.15)**	0.92 (0.75, 1.13)
Supervisors, building and grounds cleaning and maintenance	364	23.3 (17.6, 29.0)	1.05 (0.74, 1.50)	122	33.9 (24.2, 43.6)	**2.10 (1.29, 3.56)**	1.43 (0.78,2.63)
Building cleaning and pest control	1,753	25.3 (22.5, 28.1)	0.92 (0.79, 1.08)	2,048	21.0 (18.8, 23.2)	**0.83 (0.72, 0.96)**	0.69 (0.56, 0.85)
Grounds maintenance	1,160	27.3 (23.8, 30.8)	1.00 (0.82, 1.22)	81	34.4 (22.5, 46.4)	**2.57 (1.40, 4.69)**	1.55 (0.84, 2.83)
Personal care and service	893	23.3 (20.0, 26.7)	0.93 (0.76, 1.14)	3,480	20.3 (18.5, 22.0)	1.03 (0.92, 1.15)	0.80 (0.63, 1.01)
Farming, fishing, and forestry	**765**	**23.9 (19.8, 28.0)**	**0.79 (0.62, 1.02)**	**209**	**13.3 (8.0, 18.5)**	**0.47 (0.30, 0.75)**	**0.37 (0.22, 0.63)**

Occupation group	Men			Women			Women compared with men POR[c] (95% CI)
	Estimated[a] workers (in 1000's)	Prevalence % (95% CI)	POR[b] (95% CI)	Estimated[a] workers (in 1000's)	Prevalence % (95% CI)	POR[b] (95% CI)	
Precision production, craft, construction, repair operators, fabricators, and laborers	**25,818**	**31.3 (30.6, 32.1)**	**1.94 (1.83, 2.06)**	**4,473**	**27.2 (25.5, 28.8)**	**1.46 (1.33, 1.61)**	**0.68 (0.62, 0.74)**
Supervisors, construction, and extraction	792	31.4 (27.1, 35.7)	**1.48 (1.20, 1.83)**	24	38.9 (16.2, 61.6)	**3.00 (1.07, 8.44)**	1.46 (0.49, 4.35)
Construction trade workers and helpers	7,064	34.1 (32.5, 35.7)	**1.62 (1.49, 1.77)**	176	36.3 (28.0, 44.5)	**2.38 (1.62, 3.51)**	0.96 (0.64, 1.43)
Extraction	159	40.5 (28.8, 52.2)	**1.83 (1.13, 2.95)**	0	nc	nc	0.58 (0.31, 1.09)
Supervisors of installation, maintenance, and repair	301	24.2 (17.7, 30.8)	1.27 (0.86, 1.89)	25	33.3 (6.6, 60.0)	2.41 (0.66, 8.75)	1.35 (0.34, 5.44)
Electrical and electronic equipment mechanics, installers, and repairers	720	23.5 (19.6, 27.4)	1.19 (0.94, 1.50)	75	25.8 (14.2, 37.5)	**1.99 (1.08, 3.65)**	1.21 (0.63, 2.33)
Vehicle and mobile equipment mechanics, installers, and repairers	3,851	31.3 (29.4, 33.1)	**1.88 (1.43, 1.75)**	106	33.7 (24.3, 43.2)	**1.86 (1.18, 2.94)**	0.86 (0.54, 1.37)
Supervisors, production	633	28.7 (24.1, 33.2)	**1.52 (1.20, 1.94)**	157	25.8 (17.9, 33.7)	1.46 (0.92, 2.31)	0.68 (0.42, 1.13)
Assemblers and fabricators	794	27.6 (23.4, 31.8)	1.11 (0.89, 1.40)	521	28.4 (23.6, 33.1)	**1.42 (1.10, 1.83)**	0.88 (0.64, 1.22)
Food processing	341	29.7 (23.4, 35.9)	1.07 (0.77, 1.48)	228	30.7 (22.6, 38.8)	**1.48 (1.00, 2.18)**	0.92 (0.57, 1.49)
Metal and plastic workers	1,552	35.7 (32.6, 38.8)	**1.77 (1.52, 2.06)**	232	26.5 (19.9, 33.2)	1.35 (0.93, 1.96)	0.53 (0.35, 0.80)
Printing workers	261	31.7 (24.4, 39.0)	**1.60 (1.10, 2.34)**	84	19.6 (9.2, 30.0)	1.13 (0.56, 2.29)	0.50 (0.24, 1.03)
Textile, apparel, and furnishings	246	24.7 (18.3, 31.2)	0.92 (0.63, 1.36)	454	18.8 (14.9, 22.7)	**0.75 (0.58, 0.98)**	0.59 (0.37, 0.93)
Wood workers, plant and system operators, other production	2,383	28.2 (26.0, 30.4)	**1.21 (1.07, 1.37)**	1,042	26.4 (22.9, 29.8)	**1.28 (1.07, 1.55)**	0.77 (0.61, 0.95)
Transportation and material moving	6,720	30.5 (29.1, 32.0)	**1.35 (1.25, 1.46)**	1,347	28.3 (25.6, 31.1)	**1.48 (1.28, 1.72)**	0.77 (0.65, 0.90)
Refused, not ascertained, do not know	2,494	15.9 (13.5, 18.3)	nc	1,728	10.4 (8.6, 12.1)	nc	0.59 (0.46, 0.77)
Total	75,289	22.8 (22.4, 23.3)	nc	65,333	18.3 (17.9, 18.7)	nc	0.71 (0.69, 0.74)

Note: Boldface indicates statistical significance.

[a] Estimated annual average populations are weighted to represent current U.S. male/female workers aged ≥18 years by 45 regrouped occupations.

[b] PORs represent the odds of workers that are current smokers belonging to a specific occupation of interest compared with the odds of all other workers. Analysis was done separately for men and women; PORs are adjusted for age, race, education, and income.

[c] PORs represent the odds of women being a current smoker in a specific occupation of interest, as compared with the same odds of men being current smokers in the same occupation group of interest. nc, not calculated; POR, prevalence OR.